

CLAIMS

I CLAIM:

- 5 1. A torque activated brake assembly, comprising:
 - a first plate having an exterior side, an interior side, and an opening extending therebetween;
 - at least two grooves formed in the first plate interior side, the grooves each having a cam surface located at a predetermined angle;
 - 10 a second plate having an exterior side, an interior side, and an opening extending therebetween, the second plate interior side positioned opposed to the first plate interior side;
 - at least two grooves formed in the second plate interior side and substantially aligned with at least two of the grooves in the first plate, the grooves in the second plate each having a cam surface located at a predetermined angle;
 - 15 at least two balls, each positioned in the aligned grooves; and
 - at a torsion spring having a first end coupled within the first plate opening and a second end coupled within the second plate opening.
- 20 2. The assembly of Claim 1, wherein:
 - the first plate has a wall extending from its exterior side, adjacent to the opening in the first plate;
 - the second plate has a wall extending from its exterior side, adjacent to the opening in the second plate; and
 - 25 the torsion spring first end fits within and is coupled to the wall of the first plate, and the torsion spring second end fits in and is coupled to the wall of the second plate.
- 30 3. The assembly of Claim 1, further comprising:
 - a first opening formed in the torsion spring first end; and

a second opening formed in the torsion spring second end.

4. The assembly of Claim 1, wherein the torsion spring is machined such that the first and second ends are rotationally displaced from one another
5 upon application of a predetermined torque magnitude between the two ends.

5. The assembly of Claim 1, further comprising:
a housing surrounding at least a portion of the first and second plates;
a first brake surface positioned a first predetermined distance from the first
10 plate exterior side; and
a second brake surface positioned the first predetermined distance from the second plate exterior side,
wherein the first and second plate exterior sides contact the first and
second brake surfaces, respectively, when the balls are positioned along the first
15 and second cam side surfaces a second predetermined distance from the first and second plate interior sides.

6. A torque activated brake assembly, comprising:

a first plate having an exterior side, an interior side, and an opening extending therebetween;

5 at least two grooves formed in the first plate interior side, the grooves each having a cam surface located at a predetermined angle;

a second plate having an exterior side, an interior side, and an opening extending therebetween, the second plate interior side positioned opposed to the first plate interior side;

10 at least two grooves formed in the second plate interior side and substantially aligned with at least two of the grooves in the first plate, the grooves in the second plate each having a cam surface located at a predetermined angle;

at least two balls, each positioned in the aligned grooves;

a torsion spring having a first end coupled within the first plate opening and a second end coupled within the second plate opening;

15 a housing surrounding at least a portion of the first and second plates;

a first brake surface mounted in the housing and positioned a first predetermined distance from the first plate exterior side; and

a second brake surface mounted in the housing and positioned the first predetermined distance from the second plate exterior side,

20 wherein the first plate exterior side and the second plate exterior side contact the first brake surface and the second brake surface, respectively, when the balls are positioned along the groove cam surfaces a second predetermined distance from the first plate interior side and the second plate interior side.

25 7. The assembly of Claim 6, wherein:

the first plate has a wall extending from its exterior side, adjacent to the opening in the first plate;

the second plate has a wall extending from its exterior side, adjacent to the opening in the second plate; and

the torsion spring first end fits within and is coupled to the wall of the first plate, and the torsion spring second end fits in and is coupled to the wall of the second plate.

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8. The assembly of Claim 6, further comprising:
a first opening formed in the torsion spring first end; and
a second opening formed in the torsion spring second end.

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9. The assembly of Claim 6, wherein the torsion spring is machined such that the first and second ends are rotationally displaced from one another upon application of a predetermined torque magnitude between the two ends.

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10. The assembly of Claim 6, further comprising:
a first bearing assembly mounted within the housing to rotationally mount the first plate therein; and
a second bearing assembly mounted within the housing to rotationally mount the second plate therein.

11. A torsion spring for a thrust reverser brake assembly having two plates with openings extending through each, the spring comprising:

a machined main body having an outer surface, a first end, and a second end, the first and second ends each adapted to couple within one of the plate openings;

5 a first opening formed in the first end;

a second opening formed in the second end;

at least one protrusion extending from the main body proximate the first end; and

10 at least one protrusion extending from the main body proximate the second end,

wherein the main body is machined such that the first and second ends are rotationally displaced from one another upon application of a predetermined torque between the two ends.

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12. A brake plate for a thrust reverser brake assembly, the plate comprising:

an exterior side;

an interior side;

20 an opening extending between the interior and exterior sides;

at least two grooves formed in the interior side, the grooves each having a cam surface located at a predetermined angle.